Hiroshi INOUE*: An interesting new species of *Lophozia* from limestone districts of Chichibu-Okutama Mountains

井上 浩*: 秩父奥多摩産 *Lophozia* 属の新種

Schuster (1951) reviewed the Lophoziaceae of the "Nearctic" region and proposed a new system for this family. In Japan, however, such a comprehensive revision has not been published. During 1951～1959 I have studied this family in Chichibu-Okutama Mountains and recognized 14 species for the area. Some of them are rather critical species, especially those in the limestone districts. One is *Lophozia diversiloba*, on which I discussed in 1957, proposing for it a new subgenus Hattoriella. Recently I also collected the perianth and sporophyte of *Acrobolbus mayebarae*. Its structure indicated that this species should belong to the new genus *Hattoriella* which was rised from subgeneric rank (Inoue 1960). Hattori (1956) described a new *Lophozia*, *L. igiana*, from limestone districts of Japan. This is the first record of subgenus Leiocolea from Japan. This species is also rather widely distributed in Chichibu-Okutama Mountains.

In 1956 I collected an unfamiliar *Lophozia* species on Mt. Buko of those Mountains. This specimens were examined about a year after collection and its oil-body type could not be studied. But its perianth form synoecious inflorescence indicate some relation to subg. Leiocolea. In 1958 I also found the same species at Nippara of the same Mountains. From the studies of the living material I was very puzzled for its status in the Lophoziaceae. Its perianth form and oblique leaf insertion show that it probably belongs to the genus *Lophozia* as defined by Schuster (1951).

Lophozia chichibuensis Inoue, sp. nov. (figs. 1–20).

Planta minor, flavo-brunnea vel olivacea, ad rupes calcareas caespitosa; caulis 6–10 mm. longus; radicellis numerosis; folia caulina remotiuscula vel rarius contigua, late oblique inserta, in plano suborbiculata vel late ovata, apice 1/8 biloba; cellulae medianae medianae (29)–35–40×37–50–(57) μ, parietibus tenuibus, trigonis minutis vel nullis; cuticula verrucosa; amphigastria caulina lanceolata vel oblongo-ovata. Paroicae vel synoicae; perianthia terminalia, cylindrica, apice plicata, ore crenulata; folia floralia 2–3-lobata, caulinis simillima; amphigastria florale lanceolata, caulinis majora. Specimem typicum: H. Inoue no. 5604.

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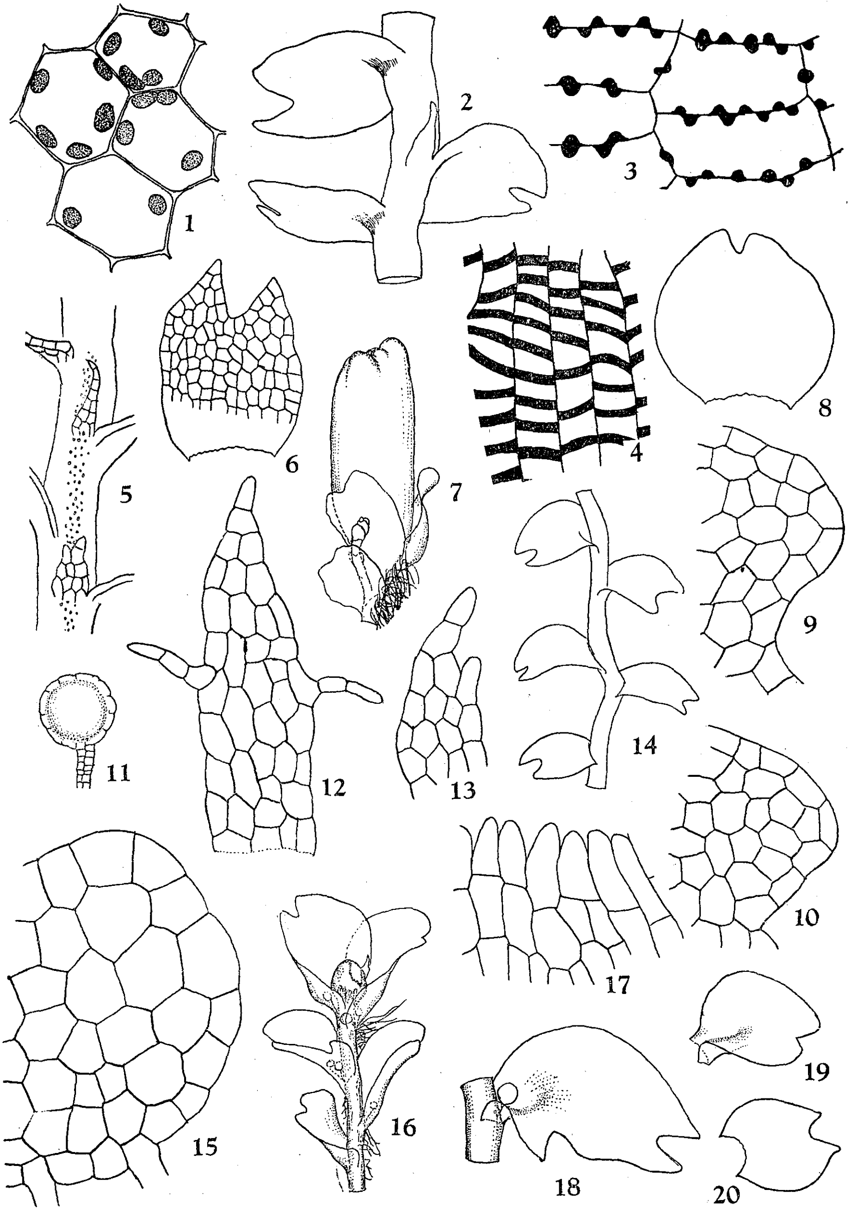
Plants prostrate with ascending apices, in compact patches or among mosses on limestone, brown or often yellowish brown. Mature shoot 0.8–1.3 mm. wide; stem flexuose, 88–125 μ in diameter, 6–10 mm. long, simple, in cross-section 6–9 cells thick, cortical cells not differentiated, ventral celles than dorsal ones, upper medullar cells distinctly larger than lower ones, cells hyaline and thin-walled throughout. Rhizoids numerous, long, scattered, colorless. Leaves distant or often contighous, obliquely inserted, horizontally spreading, more or less dorsally convex, suborbicular to widely ovate of sometimes ovate-oblong, 0.4–0.9 mm. wide and 0.4–1.0 mm. long (width/length ratio 0.8–1.1), bilobed for 1/8 (rarely up to 1/3) the length, sinus obtuse, lobes obtuse to rounded, or rarely subscute on sterile shoot. Cells of leaves 25–31×30–38 μ in leaf apex, (29)–35–40×37–50–(57) μ in middle, but in sterile shoot often 60–68×38–43 μ, cell walls colorless to pale brownish, thin, trigones small or almost absent, cuticle distinctly verrucose. Oil-bodies 2–6 per cell, eliptical and 3–4 μ or fusiform and 6×3 μ, with numerous apherules, never segmented nor papillose, brownish gray. Underleaves always present, often diminutive, lanceolate or oblong-ovate, acute, rarely with 1–(2) unicellular teeth, 2–5 cells wide at base, 4–8 cells long. Paroecious or synoecious. Male bracts nearly as large as leaves, transversally inserted dorsally, obliquely or horizontally spreading, bilobed up to 1/3 of length, usually with an additional lobe (or teeth) on dorsal margin; paraphyllia absent; antheridia 1–(2), with bistratose stalk, often born in female bracts. Female bracts a little larger than leaves, inflated at base, bilobed up to 1/3 the length, lobes obtuse, sinus subacute to obtuse, margin entire; bracteoles distinct, slightly united with bract at one side, ca. 0.4 mm. long, oblong-lanceolate, acute, mostly with a ciliar tooth on each margin. Perianth long exerted, 1.2–1.5 mm. long, cylindrical, plicate at upper portion, never forming a beak at mouth, mouth crenulate; subfloral innovation often present. Capsule reddish brown, valves ca. 3 times as long as wide, 3–(2) layered, outer cells with nodular thickenings mostly on longitudinal walls, inner cells with campleted annular bands. Spores 12–14μ in diameter, reddish brown, finely verrucose; elaters ca.

Lophozia chichibuensis Inoue 1. Cells from leaf-middle, showing oil-bodies, ×750. 2. Part of plant, ventral view, ×75. 3. Cells of outer layer of capsule wall, ×750. 4. Ditto from inner layer of capsule wall, ×750. 5. Ventral side of stem, showing two underleaves, and rhizoid initial region, ×75. 6. Leaf on sterile shoot, ×75. 7. Perianth, ×20. 8. Leaf from fertile shoot, ×75. 9—10. Apex of leaf-lobes, ×140. 11. Antheridium, ×140. 12. Bracteole, ×140. 13. Underleaf, ×140. 14. Part of plant, dorsal view, ×20. 15. Part of cross-section of stem, ×300. 16. Shoot apex of fertile plant, ×29. 17. Part of perianth mouth, ×300. 18. Male bract, ×60. 19—20. Female bracts, ×20. Figs. 1-2 and 6-7 from Inoue no. 7954; others from Inoue 5604 (type).



7μ wide, bispiral, spiral ca. 2μ wide, brown. Gemmae absent.

Specim. Exam. Mt. Buko, Chichibu dtstr., Saitama Pref.; ca. 800 m. alt.; on wet limestone occurring with *Conocephalum conicum* and *Gollania neckerella* (July 1956. H. Inoue 5604–type in herb. Inoue; duplicate in herb. NICH and in herb. R.M. Schuster of Massachusetts Univ.); with *Plagiochasma intermedium* (H. Inoue 5605). Nippara, Okutama distr., Tokyo Pref., ca. 400 m.alt.; on limestone cliff in shady place with *Plagiochasma intermedium*, *Gollania neckerella* and *Tortella tortuosa* (July 1958. H. Inoue 7954).

From the above description this new species comes close to some members of subg. Leiocoles in (1) stem structure, (2) oil-body type, (3) presence of underleaves and bracteoles, (4) paroecious or often synoecious inflorescence, and (5) capsule wall structure. However, by its perianth from this species cannot be included in subg. Leiocolea, because it is characterized by its perianth as "smooth, terete, at the mouth suddenly constracted into a short break" (Schuster 1951). In inmature stage, the mouth of perianth of *L. chichibuensis* (fig. 16) is truncate and open; however, in subg. Leiocolea it forms a small break, as figured in *L. igiana* by Hattori (1956). Furthermore, the antheridium often synoicously occurs in the female bracts. This feature seems to be the most remarkable for this species.

Lophozia chichibuensis probably resembles to *L.* (Leiocolea) *gillmanii* of Europe and N. America. It is also a paroecious species and the antheridium also often developes in the axils of the female bracts (Schuster 1951). Furthermore, *L. gillamanii* is a calciphilous species occurs as a pioneer on calcareous rocks in N. America (Schuster 1953). However, *L. chichibuensis* is distinct (even in a sterile condition) from it by far smaller size of plant (2–4 mm. wide and 1.5–4 cm. long in *L. gillmanii*), usually distant leaves, widely ovate or suborbicular leaf form, obtuse or rounded lobes of leaves, and large, triangular trigones of leaf cells. In fertile plant *L. chichibuensis* is distinct by its perianth form.

I am much indebted to Prof. H. Ito and Dr. S. Hattori for their kind criticisms.

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摘　　要

日本の石灰岩地に分布する蘚苔類にはいろいろ特殊なものが多いことは，近年種々の面から指摘された。私は秩父奥多摩地方の苔類を研究中，Lophoziaceae の中でもとくに石灰岩地に分布する種に注目すべきものがあることを知り，そのうちの 1～2 のものについてはすでに報告して来た。

最近，武甲山および日原で得た種類は，花被の性質からその所属の決定にまよっていた。生品によってみると，油体型やその他の形質から *Lophozia* の Leiocolea 亜属のものに近いと考えられる。植物体はごく小形で，雄器が雌包葉の内側にも生ずる点特異的である。このような性質は Leicolea 亜属の中でも *L. gillmanii* にみられる。然しながら花被口部が Leicolea 亜属のような “くちばし” 状の突起をつくらないこと，発育途中の花被では口部が大きく開らいている点で Leicolea 亜属には含められないと考えられるが *Lophozia* 属（広義の）のものであることは明らかであるので，ここに新種として記載しておく。

○*Makinoella tosaensis* 東京に産す（小林　弘）Hiromu KOBAYASI : *Makinoella tosaensis* found in Tokyo.

岡田喜一氏が発見して本誌 **24** : 166, 1949 に記載された淡水産緑藻類の本種は，原産地高知市のほかは，今までに神谷平氏（本誌 **31** : 257, 1956）によって愛知県春日井市で発見されただけである。筆者は 1960 年 9 月 20 日東京都港区浜松町東洋病院の池に盛んに生育して純群落をつくっているのを見つけたので報告する。この池は縦 1.5 m, 横 1 m, 深さ 20 cm ばかりの小判形のコンクリート製の金魚池で，前 2 者がコンクリート製の小池であり，春日井市のものが金魚養育池であることを考えると，このような環境を好むもの，すなわち好石灰質性，好富栄養性の種類であると考えられる。pH は 8.9 で春日井市の池の 8.8 と似た値であった。なお発生の時期は 3 者とも 9-11 月である。（東京教育大学理学部植物学教室）